

Testing the early evolution of pre-main sequence stars

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Ages of pre-main sequence stars are notoriously uncertain, with implications for measurements of envelope and protoplanetary disk survival times and for quantifying star formation histories. In any given cluster, a spread of apparent ages may be caused by individual differences in stellar evolution, by observational errors, or by a real age spread. The ages of intermediate-mass and low-mass young stars inferred from HR diagrams also differ. In this talk, I will discuss how uncertainties in early accretion histories may affect the location of the stellar birth, how uncertainties in the internal structure affect the subsequent contraction, and how the latest stellar models improve their treatment of these processes. I will then describe how these models are being tested with empirical measurements of stellar masses and estimates of ages from population analyses from HR diagrams and Li depletion boundary.

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Session Classification: Pre-main sequence stars and the connection to the formation and early evolution of stars and planetary systems